Contract Learning Pilot Study

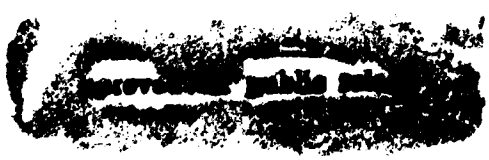
(Project Kaizen*)

May 20, 1994

Report Prepared by:

Jay W. Gould III
and
Donald S. Fujii

*Continuous Improvement



SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION Unclassified	1b. RESTRICTIVE MARKINGS Unclassified
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution unlimited
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S)	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION Defense Systems Mgmt College 6b. OFFICE SYMBOL (If applicable) FD-MD	7a. NAME OF MONITORING ORGANIZATION Same as 6a
6c. ADDRESS (City, State, and ZIP Code) 9820 Belvoir Road Suite G38 Fort Belvoir, VA 22060-5565	7b. ADDRESS (City, State, and ZIP Code) Same as 6c
8a. NAME OF FUNDING/SPONSORING ORGANIZATION Same as 6a 8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (City, State, and ZIP Code) Same as 6c	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. / PROJECT NO. / TASK NO. / WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) Contract Learning Pilot Study (Project Kaizen) Report	
12. PERSONAL AUTHOR(S) Jay W. Gould III and Donald S. Fujii	
13a. TYPE OF REPORT Study 13b. TIME COVERED FROM _____ TO _____	14. DATE OF REPORT (Year, Month, Day) 94 May 20 15. PAGE COUNT 37
16. SUPPLEMENTARY NOTATION	

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Experimental Design; Sampling Procedures; Methods of Gathering Data; Data Collection; Methods of Analysis; Scoring Procedures; Interpretation of Results and Discussion

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

A major part of the PMC cirriculum is the Integrative Program Management classes which offers the students the opportunity to combine functional knowledge, student and faculty experience, and original thought in an integrated series of experiential exercises--- Experiential Learning (EL), Integrated Subjects (IS), and Grand Slam (GS) classes. The students in Section C, a senior section comprised of O-6s, GS/GM-15s who had considerable Program Management Office experience, expressed a desire to try an alternative learning approach based upon a concept of learning contracts. The report is a condensed version of the results of the designed pilot study of control and experimental groups.

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS	21. ABSTRACT SECURITY CLASSIFICATION Unclassified
22a. NAME OF RESPONSIBLE INDIVIDUAL Sylvia Nance	22b. TELEPHONE (Include Area Code) 703-805-2743 22c. OFFICE SYMBOL OS-PR

DD Form 1473, JUN 86 *Previous editions are obsolete.* SECURITY CLASSIFICATION OF THIS PAGE

DSMC-FD-MD 20 May 1994

MEMORANDUM FOR: CAPTAIN DAN BROWN

SUBJECT: Contract Learning Pilot Study (Project Kaizen)Report

1. As requested, a report on the Contract Learning Pilot Study is attached. Due to the spontaneous chain of events which led to the formulation of the pilot study, the results and the interpretation of the results must be accepted with caution. As an example, the only criterion measure that was collected was student satisfaction. At best, the results are preliminary indicators of the added value that can be realized by taking an adult learning approach in the IS and GS exercises.

2. The results are encouraging and should become the basis for further research. As suggested by Al Beck, future studies should focus on the extent to which pre-determined IS and GS learning objectives are achieved by an adult learning (Malcolm Knowles' Theory of Adult Learning) approach.

3. The support of the PMC students, the IP instructors, Craig Lush, Pete Vollmer, Jan Drummond, John Hamel, Jim Price, Chip Summers, George Langbein, you, and others who made the pilot study possible is appreciated.

JAY W. GOULD III
Managerial Development
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ATCH: Report

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CONTRACT LEARNING PILOT STUDY (PROJECT KAIZEN)

BACKGROUND

Each PMC class is currently comprised of 14 sections (A-N) of 30 students each. Sections C and D have been designated "senior sections" and are made up of senior uniformed personnel (O-6s), senior civil servants (GS/GM-15s and SESs), and senior industry managers. The senior students are assigned to Section C or D so there are approximately equal numbers from each service (Army, Navy, Air Force, Marines, and Coast Guard) and industry. A significant part of the PMC educational process involves the exchange of acquisition knowledge and experience between the students, and between the instructors and students. Thus, the mixing and matching of students in a section enriches the learning process.

Both Sections C and D are similar in terms of their Myers-Briggs Type Indicator (MBTI) preference scores. As illustrated in Tables 1 and 2, the modal (most frequently occuring) type for both sections is ISTJ (Introverted, Sensing, Thinking Judging).

Sections C and D are also similar in terms of their Perry Learning Environment Learning Preferences. Tables 3 and 4 show that Section C's learning preferences more closely approximates a normal distribution than Section D's, but their mean scores (Section C = 370.7; Section D = 364.6) are similar. A t-test for independent samples was conducted and yielded a t value of 0.48, with 48 degrees of freedom. This value was **insignificant** at the .05 level of significance. Therefore, the null hypothesis (Section C's mean (370.7) equals Section D's mean (364.6)) could not be rejected, and both means are statistically equal.

Thus, because approximately equal numbers of students from each service and industry are assigned to each section, because Sections C and D have the identical ISTJ modal type, and because both sections have similar Perry Learning Environment Preference group means, Sections C and D are considered to be similar.

A major part of the PMC curriculum is the Integrative Program Management Course which offers the student the opportunity to combine functional knowledge, student and faculty experience, and original thought in an integrated series of experiential programs and exercises--**Experiential Learning (EL)** classes, **Integrated Subjects (IS)**, and **Grand Slam (GS)**. The current pilot project focuses on IS and GS which offer the student the opportunity to review and apply lessons learned on a large acquisition program involving a wide range of programmatic, political and management issues.

THE PILOT PROJECT

Background. When the students in Section C received their initial introduction to IS, a few of them who had considerable Program Management Office experience, expressed a desire to try an alternative learning approach based on the Malcolm Knowles concept of learning contracts. The issue was, "How can a learning contract be framed so the students will achieve the critical acquisition process competencies that would have been covered in IP?" On March 30, 1994, Section C presented a briefing to the Dean of the Program Management Education

Division (Exhibit A). The basic concept was suggested by the faculty, but the briefing was totally developed and owned by the students of Section C. At the same time, the faculty discussed the possibility of finding or developing a questionnaire to measure any effects due to the learning contract approach.

Hypotheses.

Null Hypothesis: There is no difference in satisfaction between Section C and Section D students due to different approaches in conducting the IS and GS exercises.

Alternative Hypothesis: Section C will have a different level of satisfaction from that of Section D due to a different approach in conducting the IS and GS exercises.

Experimental Design. Because Sections C and D are similar with respect to the manner in which the students were assigned to each section, their identical ISTJ modal types, and their similar Perry Learning Environment Preference means, both sections (groups) were considered to be similar. Collectively, these characteristics are equivalent to a series of pretests conducted to determine the degree of similarity between the groups. The **Nonequivalent Control Group Design** was selected to test the null hypothesis (the hypothesis of no difference).

Experimental Group (Section C)	O_1	X	O_2
Control Group (Section D)	O_3		O_4

Section C is the experimental group and Section D is the control group. The learning contract approach is the experimental treatment (X). Section D, the control group, followed the current IS and GS approaches. Rejection of the null hypothesis will be interpreted as support for the **alternative hypothesis.**

Sampling Procedures. Described in the **Background Section.**

Methods of Gathering Data.

The Questionnaire. The Minnesota Satisfaction Questionnnaire (MSQ), the Job Descriptive Index (JDI), the Semantic Differential Scale, and Bullock's Scale were examined as potential instruments to measure student satisfaction. Because of the general wording used in these instruments, they were considered inappropriate for the pilot study. As a result, the wording of the MSQ short form was modified to fit the IS and GS situations. During the modification process, every effort was made to preserve the parallism between the MSQ wording and the modified wording. The modified questionnaire was reviewed by the Dean of the Program Management Education Division who concurred with the tailored changes. The questionnaire, **Student Led Acquisition Management Activities Questionnaire** (Exhibit B), yields three measures of satisfaction: Intrinsic Satisfaction, Extrinsic Satisfaction, and General Satisfaction. **Intrinsic Satisfaction** is defined as a person's attitude toward an activity or task that is influenced by the activity or task itself. Examples include, "The chance to do

things that makes use of my abilities," "The way my teammates get along with each other," and "Being able to keep busy all the time." **Extrinsic Satisfaction** is defined as a person's attitude toward an activity or task that is influenced by sources other than the activity or task. Examples include, "The chance to tell other people what to do," "The instructor praise I get for effective decision making," and "The chance to do different tasks from time to time." **General Satisfaction** is defined as a person's attitude toward the task or activity in general, and is the composite score of all 20 items on the questionnaire. The approved questionnaire is Exhibit B.

Data Collection. The acting chair of the IP Department sent an E-Mail message to the IP instructors of the PMC sections that were selected to complete the questionnaire. Jay Gould from the Managerial Development Department volunteered to administer the questionnaire to all sections to control for any confounds due to different administrators. The goal was to complete all questionnaires by May 13, 1994. Each IP instructor was asked to coordinate with Jay Gould for a time and place that was mutually acceptable. The questionnaire was administered to Section D on May 11, 1994, and to Section C on May 12, 1994. Between May 12 and 13, 1994, the questionnaire was also administered to five other PMC sections to collect additional data. The results from two of the sections appeared to be subjected to confounding, e.g., students comments written on the questionnaire, and not responding to all items. The data from these sections were not used for the analysis as they did not relate to the null

hypothesis being tested. The data from one of the three remaining sections was randomly selected and used to compare the means of Section C, Section D, and this section which was labeled Section X.

Scoring Procedures. The scores from the individual questionnaires were entered onto an individual scoring sheet (Figure 1). The scores to 12 of the 20 questionnaire items were totaled to yield the **Intrinsic Satisfaction** score. The scores to 6 of the 20 questionnaire items were totaled to yield the **Extrinsic Satisfaction** score. The scores of all 20 questionnaire items were totaled to yield the **General Satisfaction** score. The maximum values for Intrinisic Satisfaction, Extrinsic Satisfaction, and General Satisfaction are 60, 30 and 100, respectively.

Methods of Analysis.

The satisfaction data from each section was analyzed with the Kolmogorov-Smirmov Goodness of Fit Test to determine the extent to which each section's distribution of scores approximated a normal distribution. The results (Figure 11) indicated all distributions were within the normal range.

This assumption of normality of distribution was established because it must be met before the statistical test--the Tukey HSD (Honestly Significant Difference) test can be used to test for significance between the means of Sections C, D and X. The .05 level of significance was used for the Tukey HSD test.

For each section, the mean, mode, kurtosis, SE skew, maximum score, standard error, standard deviation, SE kurtosis, range, median, variance,

skewness, and minimum score of the intrinsic, extrinsic, and general satisfaction scores were calculated.

In addition to the Tukey HSD test, the raw scores were converted to normalized (percentile) scores to determine how high satisfaction, average satisfaction, and low satisfaction scores were distributed in each section.

Interpretation of Results and Discussion.

The mean, mode, kurtosis, SE skew, maximum score, standard error, standard deviation, SE kurtosis, range, median, variance, skewness, and minimum score of the intrinsic, extrinsic, and general satisfaction scores of Sections C, D and X are shown at Figures 2-10.

The results of the one-way analysis of variance utilizing Tukey's HSD test (Figures 12-14) indicate that **Section C's intrinsic, extrinsic and general satisfaction scores are significantly different from the intrinsic, extrinsic, and general satisfaction scores of Section D and Section X, respectively.** The contract learning approach did result in significantly different higher satisfaction scores for the students in Section C. The probability of this happening on the basis of chance is 5 out of 100 cases. Therefore, the null hypothesis, which predicted no difference between Sections C and D, can be rejected, and the alternative hypothesis, which predicts a difference between Sections C and D, is supported. A possible explanation for the significantly positive satisfaction scores of the students in Section C is found in Malcolm

Knowles' Adult Learning Theory. Specifically, Knowles postulates five assumptions of adult learners: (1) Adults are motivated to learn as they experience needs and interests that learning will satisfy; (2) Adult's oreintation to learning is life-centered; therefore, the appropriate units for organizing adult learning are life situations, not subjects; (3) Experience is the richest resource for adults' learning; therefore, the core methodology of adult education is the analysis of experience. (against theory, mine); (4) Adults have a deep need to be self-directing; therefore, the role of the teacher is to engage in a process of mutual inquiry with them rather than to transmit his or her knowledge to them and then evaluated their conformity to it; and (5) Individual differences among people increase with age; therefore, adult education must make optimal provision for differences in style, time, place and pace of learning.

The results of the normalized (percentile) scores for intrinsic, extrinsic, and general satisfaction are show in Figure 15. The students in **Section C** had a **higher percentage of high satisfaction scores** (percentile scores of 75 or higher) **for intrinsic, extrinsic, and general satisfaction** than the students in Section D. The average satisfaction scores (percentile scores of 26 to74) and low satisfaction scores (percentile scores of 25 or lower) are also shown in Figure 15.

TABLE 1

* SECTION PREFERENCE SCORES * MP941AN1 02-14-94

SECTION:C 31 STUDENTS

ISTJ = 10	ISFJ = 0	INFJ = 0	INTJ = 4
ISTP = 3	ISFP = 0	INFP = 0	INTP = 0
ESTP = 1	ESFP = 0	ENFP = 1	ENTP = 1
ESTJ = 4	ESFJ = 0	ENFJ = 1	ENTJ = 6

E = 14	45 %	IJ = 14	45 %		
S = 18	58 %	IP = 3	10 %		
T = 29	94 %	EP = 3	10 %		
J = 25	81 %	EJ = 11	35 %		
I = 17	55 %	ST = 18	58 %		
N = 13	42 %	SF = 0	0 %		
F = 2	6 %	NF = 2	6 %		
P = 6	19 %	NT = 11	35 %		
SJ = 14	45 %	TJ = 24	77 %	IN = 4	13 %
SP = 4	13 %	TP = 5	16 %	IS = 13	42 %
NP = 2	6 %	FP = 1	3 %	EN = 9	29 %
NJ = 11	35 %	FJ = 1	3 %	ES = 5	16 %

TABLE 2

* SECTION PREFERENCE SCORES * MP941AN1 02-14-94

SECTION:D 31 STUDENTS

ISTJ = 11	ISFJ = 0	INFJ = 0	INTJ = 8
ISTP = 2	ISFP = 0	INFP = 1	INTP = 4
ESTP = 0	ESFP = 0	ENFP = 0	ENTP = 1
ESTJ = 4	ESFJ = 0	ENFJ = 0	ENTJ = 0

E = 5	16 %	IJ = 19	61 %
S = 17	55 %	IP = 7	23 %
T = 30	97 %	EP = 1	3 %
J = 23	74 %	EJ = 4	13 %

I = 26	84 %	ST = 17	55 %
N = 14	45 %	SF = 0	0 %
F = 1	3 %	NF = 1	3 %
P = 8	26 %	NT = 13	42 %

SJ = 15	48 %	TJ = 23	74 %	IN = 13	42 %
SP = 2	6 %	TP = 7	23 %	IS = 13	42 %
NP = 6	19 %	FP = 1	3 %	EN = 1	3 %
NJ = 8	26 %	FJ = 0	0 %	ES = 4	13 %

TABLE 3

SECTION: C

PERRY1

Mean	370.708	Median	376.500	Mode	358.000
Std dev	48.038	Variance	2307.694	Range	250.000
Minimum	250.000	Maximum	500.000		

* Multiple modes exist. The smallest value is shown.

Valid cases 24 Missing cases 0

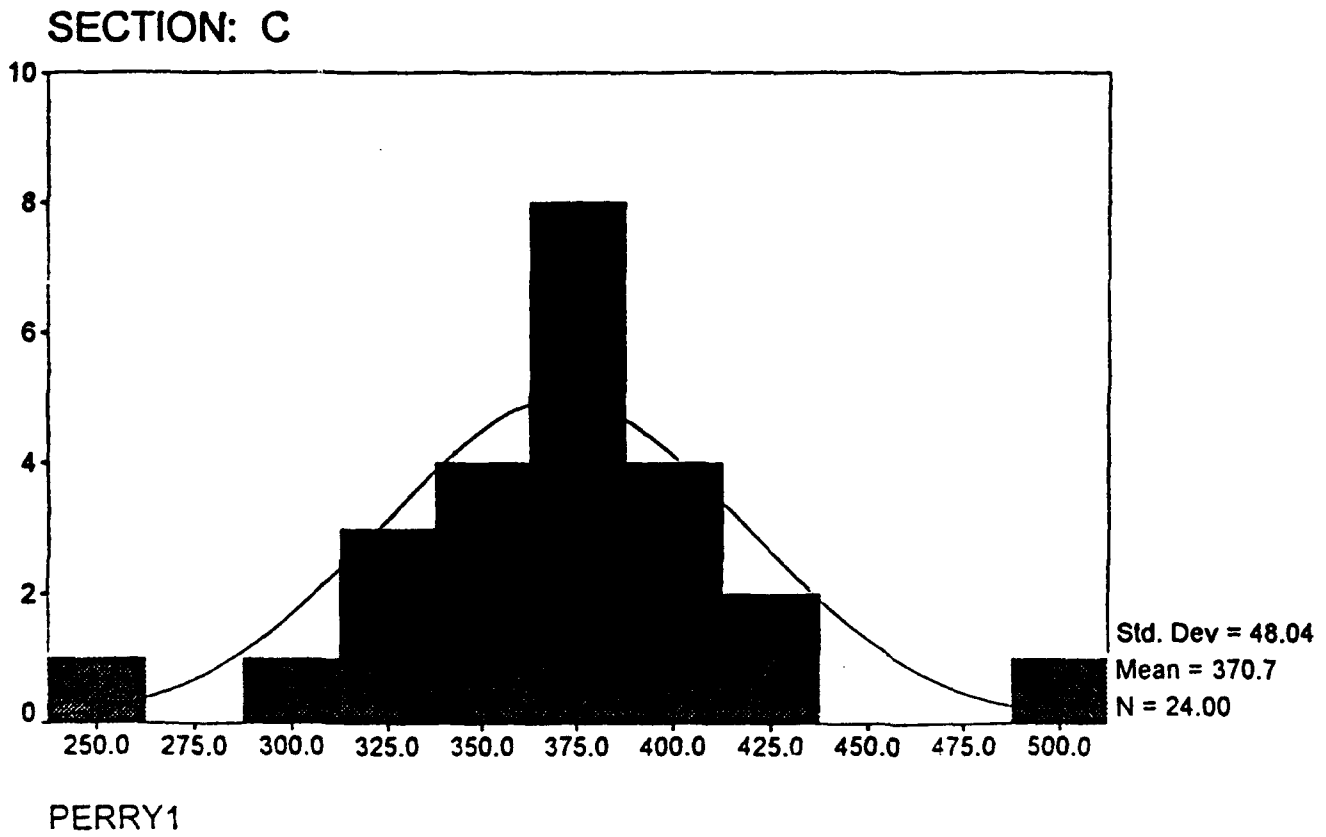


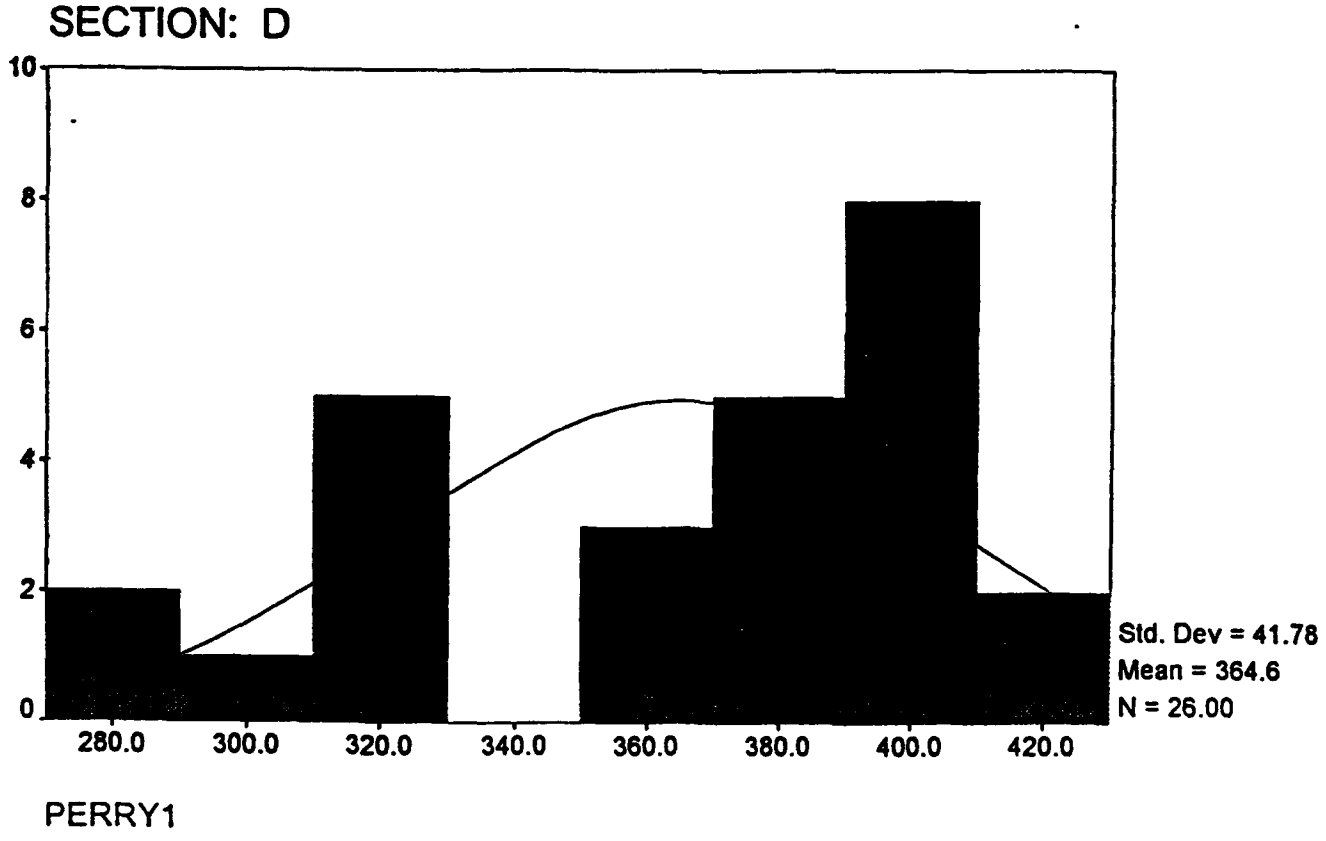
TABLE 4

SECTION: D

PERRY1

Mean	364.577	Median	382.500	Mode	400.000
Std dev	41.781	Variance	1745.614	Range	131.000
Minimum	280.000	Maximum	411.000		

Valid cases 26 Missing cases 0



DSMC 94-1
SECTION C

ALTERNATIVE GRAND SLAM PROPOSAL

30 MARCH 1994

EXHIBIT A

PROJECT KAIZEN

BACKGROUND

ADULT LEARNING EXPERIENCE

LEARNING CONTRACT

OBJECTIVE

EXAMINE CONGRESSIONAL OVERSIGHT OF THE DEPARTMENT OF DEFENSE

FUNCTIONS

- EXAMINE THE "OTHER" REPORTS THAT ARE REQUESTED BY CONGRESS ON A REGULAR BASIS TO SEE IF THEY CAN BE STANDARDIZED, COMBINED, OR ELIMINATED.

FUNCTIONS

- LOOK AT THE POTENTIAL IMPACT OF S1587 (H???) ON ACQUISITION AND THE OVERSIGHT IMPLICATIONS.

- EXAMINE THE OVERSIGHT DOCUMENTATION (CONTENT AND FORMAT) REQUIRED AT EACH MILESTONE TO DETERMINE THE VALUE ADDED AND IF THEY COULD BE COMBINED OR ELIMINATED.

DELIVERABLE

EXECUTIVE BRIEF TO THE FACILITATOR AS DEFINED IN THE LEARNING CONTRACT

EXHIBIT B

STUDENT LED ACQUISITION MANAGEMENT ACTIVITIES QUESTIONNAIRE*

Section ____ **Date_____**

The purpose of this questionnaire is to give you a chance to tell how you feel about the Student Led Acquisition Management Activities, what things you are **satisfied** with and what things you are **not satisfied** with.

On the basis of your answers and those of other sections, we hope to get a better understanding of the things people like and dislike about being a student in the Student Led Acquisition Management Activities.

On the back of this sheet you will find statements about your experiences in the Student Led Acquisition Management Activities.

- Read each statement carefully

- Decide **how satisfied you feel about the aspect** of your student status described by the statement.

Keeping the statement in mind:

- if you feel that your student activity gives you **more than you expected,** check (X) under "VS" (Very Satisfactory)

- if you feel that your student activity gives you **what you expected**, check (X) under "S" (Satisfactory)

- *if you* ***cannot make up your mind*** whether or not your student activity gives you what expected, check (X) under "N" (Neither Satisfied nor Dissatisfied)

- if you feel that your student activity gives you **less than you expected**, check (X) under "DS" (Dissatisfied)

- if you feel that your student activity gives you **much less than you expected**, check (X) under "VDS" (Very Dissatisfied)

Remember: Keep the statement in mind when deciding **how satisfied you feel** about that aspect of the Student Led Acquisition Management Activities.

Do this for all statements. Please answer every item.

Be frank and honest. Give a true picture of your feelings about your the Student Led Acquisition Management Activities.

* Adapted from the Minnesota Satisfaction Questionnaire

EXHIBIT D

Ask yourself: How satisfied am I with this aspect of the Student Led Acquisition Management Activities.
"VS" means I am very satisfied with this aspect.
"S" means I am satisfied with this aspect.
"N" means I cannot decide whether I am satisfied or not with this aspect.
"DS" means I am dissatisfied with this aspect.
"VDS" means I am very dissatisfied with this aspect.

In PMC's Student Led Acquisition Management Activities, this is how I feel about:

	VDS	DS	N	S	VS
1. Being able to keep busy all the time.....	—	—	—	—	—
2. The chance to work on my own in the exercises.....	—	—	—	—	—
3. The chance to do different tasks from time to time.....	—	—	—	—	—
4. The chance to be "somebody" in the exercise.....	—	—	—	—	—
5. The way the instructor(s) handle the students.....	—	—	—	—	—
6. The competence of our work group or team in making decisions	—	—	—	—	—
7. Being able to do things that don't go against my conscience.....	—	—	—	—	—
8. The way the exercises prepare me for job activities after PMC	—	—	—	—	—
9. The chance to help other people learn new things.....	—	—	—	—	—
10. The chance to tell people what to do.....	—	—	—	—	—
11. The chance to do things that makes use of my abilities.....	—	—	—	—	—
12. The way DoD procurement policies are put into practice.....	—	—	—	—	—
13. The extrinsic rewards and the amount of work I do.	—	—	—	—	—
14. The chances of learning something new.....	—	—	—	—	—
15. The freedom to use my own judgment.	—	—	—	—	—
16. The chance to try my own methods of doing the activities.....	—	—	—	—	—
17. The class room conditions.....	—	—	—	—	—
18. The way my teammates get along with each other.....	—	—	—	—	—
19. The instructor praise I get for effective decision making.....	—	—	—	—	—
20. The amount of learning I got out of the Student Led Acquisition Management Activities.....	—	—	—	—	—

FIGURE 1

1

INDIVIDUAL
SLAM SATISFACTION SCORES

Question	Intrinsic	Extrinsic	General
1	4	xxxxx	
2	5	xxxxx	
3	4	xxxxx	
4	4	xxxxx	
5	xxxxx	4	
6	xxxxx	5	
7	4	xxxxx	
8	4	xxxxx	
9	4	xxxxx	
10	3	xxxxx	
11	4	xxxxx	
12	xxxxx	3	
13	xxxxx	4	
14	xxxxx	5	
15	4	xxxxx	
16	4	xxxxx	
17	xxxxx	xxxxx	4
18	xxxxx	xxxxx	5
19	xxxxx	3	
20	5	xxxxx	
	49	21	82 Total Raw Score
	48	80	63

FIGURE 2

SECTION: C

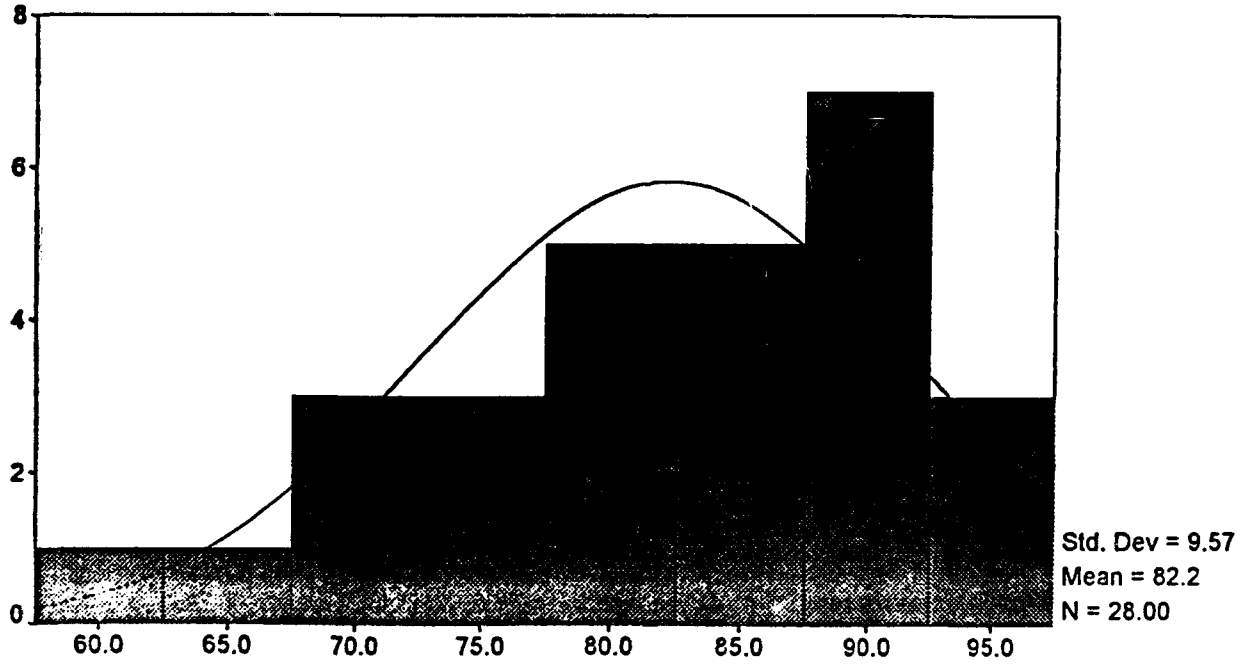
GENERAL GENERAL SATISFACTION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	59	1	3.6	3.6	3.6
	63	1	3.6	3.6	7.1
	69	1	3.6	3.6	10.7
	71	1	3.6	3.6	14.3
	72	1	3.6	3.6	17.9
	73	1	3.6	3.6	21.4
	74	1	3.6	3.6	25.0
	76	1	3.6	3.6	28.6
	79	1	3.6	3.6	32.1
	80	1	3.6	3.6	35.7
	81	1	3.6	3.6	39.3
	82	2	7.1	7.1	46.4
	83	1	3.6	3.6	50.0
	86	2	7.1	7.1	57.1
	87	2	7.1	7.1	64.3
	88	1	3.6	3.6	67.9
	89	3	10.7	10.7	78.6
	90	1	3.6	3.6	82.1
	91	2	7.1	7.1	89.3
	94	1	3.6	3.6	92.9
	95	1	3.6	3.6	96.4
	96	1	3.6	3.6	100.0
	Total	28	100.0	100.0	

Mean	82.214	Std err	1.809	Median	84.500
Mode	89.000	Std dev	9.574	Variance	91.656
Kurtosis	-.038	S E Kurt	.858	Skewness	-.744
S E Skew	.441	Range	37.000	Minimum	59.000
Maximum	96.000				

Valid cases 28 Missing cases 0

SECTION: C



GENERAL SATISFACTION

FIGURE 3

SECTION: D

GENERAL GENERAL SATISFACTION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	30	1	3.3	3.3	3.3
	32	1	3.3	3.3	6.7
	47	1	3.3	3.3	10.0
	53	1	3.3	3.3	13.3
	58	1	3.3	3.3	16.7
	60	1	3.3	3.3	20.0
	63	1	3.3	3.3	23.3
	64	2	6.7	6.7	30.0
	65	1	3.3	3.3	33.3
	66	1	3.3	3.3	36.7
	67	2	6.7	6.7	43.3
	68	1	3.3	3.3	46.7
	69	2	6.7	6.7	53.3
	71	1	3.3	3.3	56.7
	72	2	6.7	6.7	63.3
	74	2	6.7	6.7	70.0
	75	1	3.3	3.3	73.3
	76	1	3.3	3.3	76.7
	78	1	3.3	3.3	80.0
	79	1	3.3	3.3	83.3
	80	1	3.3	3.3	86.7
	84	1	3.3	3.3	90.0
	89	1	3.3	3.3	93.3
	90	1	3.3	3.3	96.7
	91	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

Mean	68.233	Std err	2.614	Median	69.000
Mode	64.000	Std dev	14.316	Variance	204.944
Kurtosis	1.637	S E Kurt	.833	Skewness	-.988
S E Skew	.427	Range	61.000	Minimum	30.000
Maximum	91.000				

* Multiple modes exist. The smallest value is shown.

Valid cases 30 Missing cases 0

SECTION: D

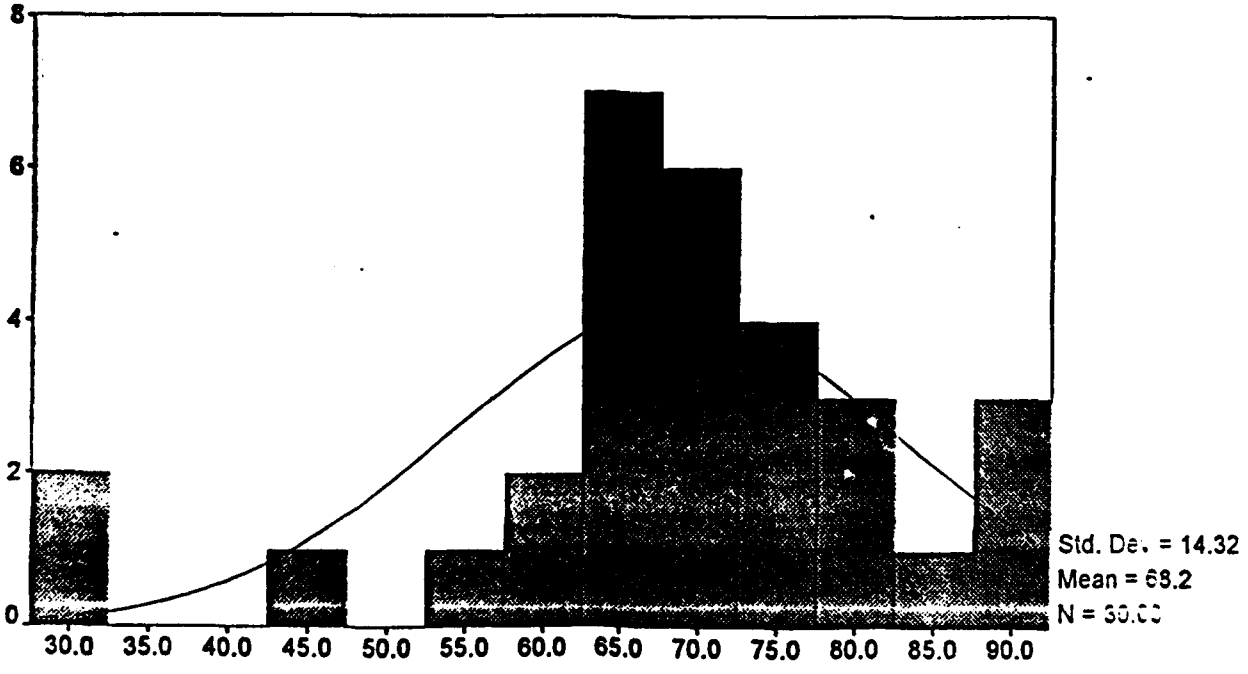


FIGURE 4

SECTION: X

GENERAL GENERAL SATISFACTION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	42	1	3.7	3.7	3.7
	43	1	3.7	3.7	7.4
	45	2	7.4	7.4	14.8
	48	1	3.7	3.7	18.5
	49	1	3.7	3.7	22.2
	52	1	3.7	3.7	25.9
	54	1	3.7	3.7	29.6
	55	1	3.7	3.7	33.3
	56	1	3.7	3.7	37.0
	58	1	3.7	3.7	40.7
	60	1	3.7	3.7	44.4
	61	1	3.7	3.7	48.1
	62	1	3.7	3.7	51.9
	63	3	11.1	11.1	63.0
	64	1	3.7	3.7	66.7
	66	1	3.7	3.7	70.4
	67	2	7.4	7.4	77.8
	68	1	3.7	3.7	81.5
	73	1	3.7	3.7	85.2
	75	2	7.4	7.4	92.6
	80	1	3.7	3.7	96.3
	81	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

Mean	60.556	Std err	2.125	Median	62.000
Mode	63.000	Std dev	11.043	Variance	121.949
Kurtosis	-.713	S E Kurt	.872	Skewness	.031
S E Skew	.448	Range	39.000	Minimum	42.000
Maximum	81.000	Sum	1635.000		

Valid cases 27 Missing cases 0

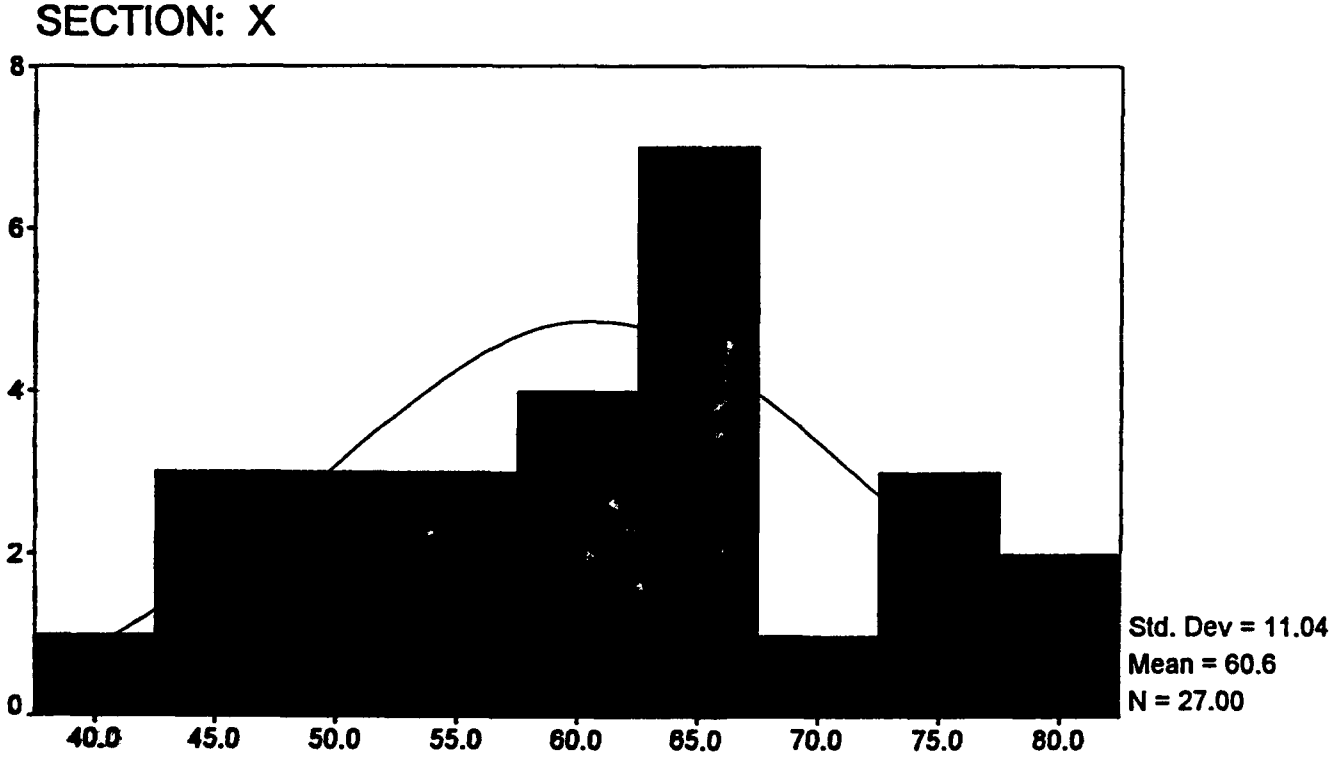


FIGURE 5

SECTION: C

INTRNSIC INTRINSIC SATISFACTION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	36	1	3.6	3.6	3.6
	39	1	3.6	3.6	7.1
	42	1	3.6	3.6	10.7
	45	3	10.7	10.7	21.4
	46	1	3.6	3.6	25.0
	48	1	3.6	3.6	28.6
	49	1	3.6	3.6	32.1
	50	3	10.7	10.7	42.9
	51	2	7.1	7.1	50.0
	53	1	3.6	3.6	53.6
	54	2	7.1	7.1	60.7
	55	2	7.1	7.1	67.9
	56	4	14.3	14.3	82.1
	57	1	3.6	3.6	85.7
	58	2	7.1	7.1	92.9
	60	2	7.1	7.1	100.0
	Total	28	100.0	100.0	

Valid cases 28 Missing cases 0

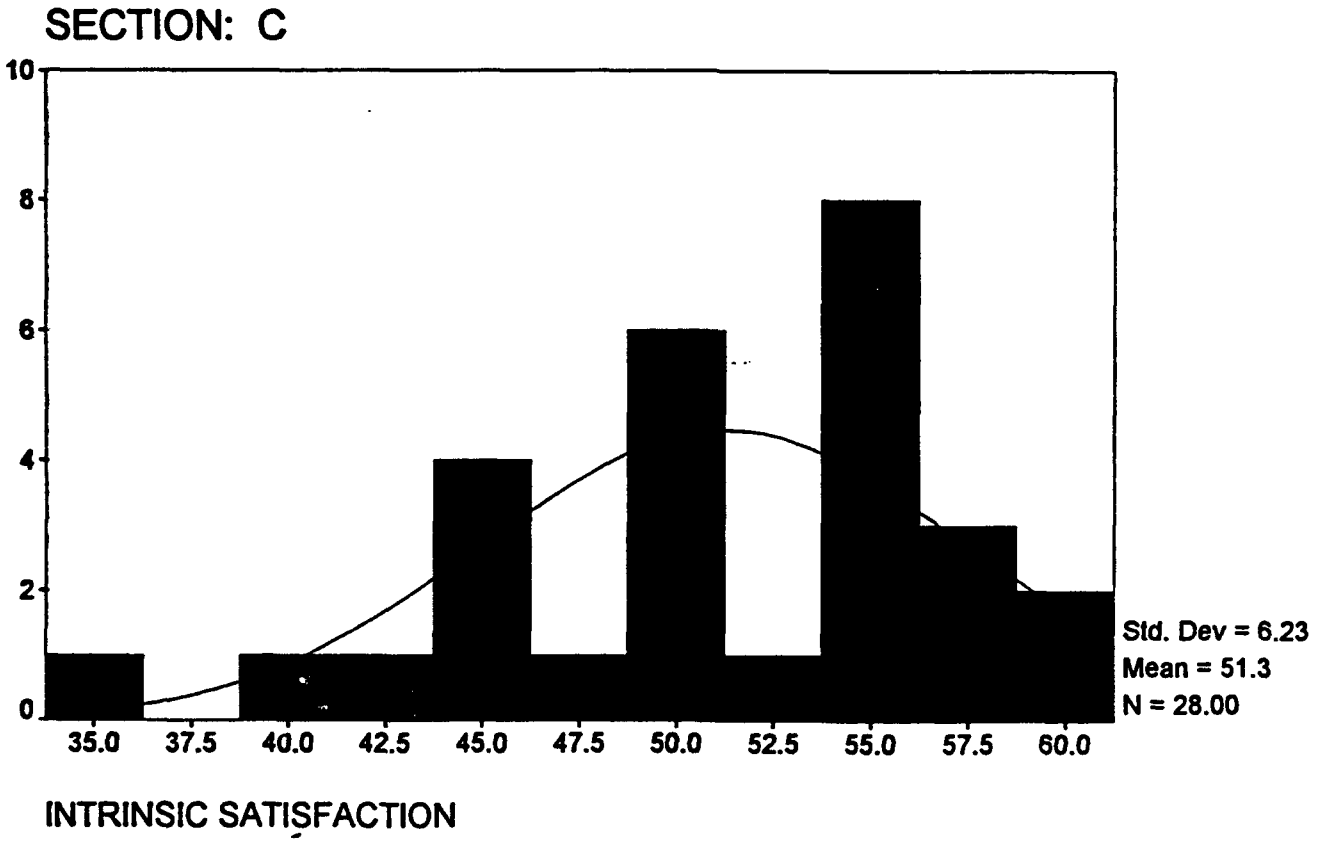


FIGURE 6

SECTION: D

INTRNSIC INTRINSIC SATISFACTION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	15	1	3.3	3.3	3.3
	17	1	3.3	3.3	6.7
	29	2	6.7	6.7	13.3
	31	1	3.3	3.3	16.7
	34	1	3.3	3.3	20.0
	35	1	3.3	3.3	23.3
	37	1	3.3	3.3	26.7
	38	2	6.7	6.7	33.3
	39	3	10.0	10.0	43.3
	40	2	6.7	6.7	50.0
	41	1	3.3	3.3	53.3
	42	3	10.0	10.0	63.3
	45	4	13.3	13.3	76.7
	46	3	10.0	10.0	86.7
	47	1	3.3	3.3	90.0
	52	1	3.3	3.3	93.3
	53	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

Mean	39.667	Std err	1.628	Median	40.500
Mode	45.000	Std dev	8.919	Variance	79.540
Kurtosis	1.790	S E Kurt	.833	Skewness	-1.126
S E Skew	.427	Range	38.000	Minimum	15.000
Maximum	53.000				

Valid cases 30 Missing cases 0

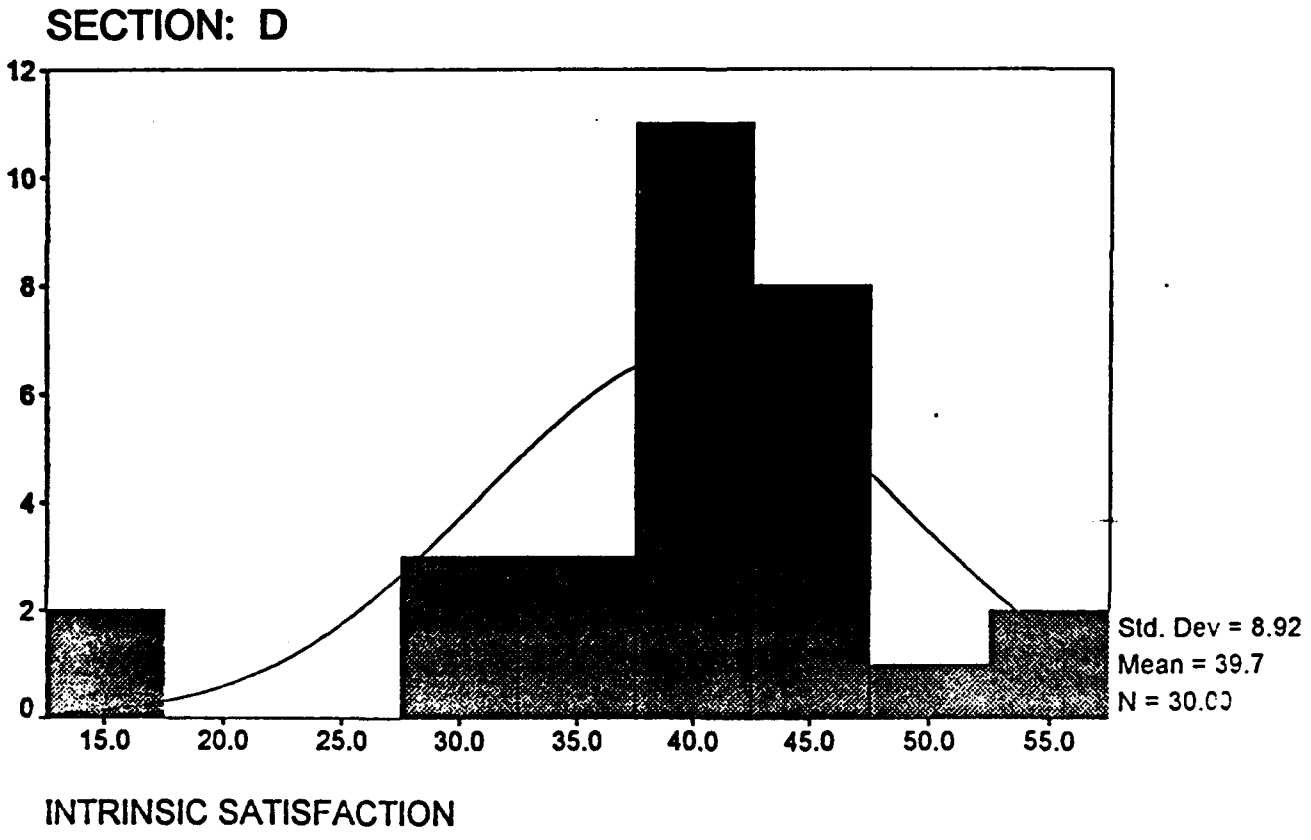


FIGURE 7

SECTION: X

INTRNSIC INTRINSIC SATISFACTION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	22	1	3.7	3.7	3.7
	23	1	3.7	3.7	7.4
	27	1	3.7	3.7	11.1
	28	1	3.7	3.7	14.8
	29	1	3.7	3.7	18.5
	30	1	3.7	3.7	22.2
	32	4	14.8	14.8	37.0
	33	1	3.7	3.7	40.7
	35	1	3.7	3.7	44.4
	36	1	3.7	3.7	48.1
	38	4	14.8	14.8	63.0
	39	1	3.7	3.7	66.7
	41	2	7.4	7.4	74.1
	42	1	3.7	3.7	77.8
	43	1	3.7	3.7	81.5
	45	1	3.7	3.7	85.2
	46	1	3.7	3.7	88.9
	47	1	3.7	3.7	92.6
	48	2	7.4	7.4	100.0
	Total	27	100.0	100.0	

Mean	36.407	Std err	1.420	Median	38.000
Mode	32.000	Std dev	7.376	Variance	54.405
Kurtosis	-.743	S E Kurt	.872	Skewness	-.142
S E Skew	.448	Range	26.000	Minimum	22.000
Maximum	48.000	Sum	983.000		

* Multiple modes exist. The smallest value is shown.

Valid cases 27 Missing cases 0

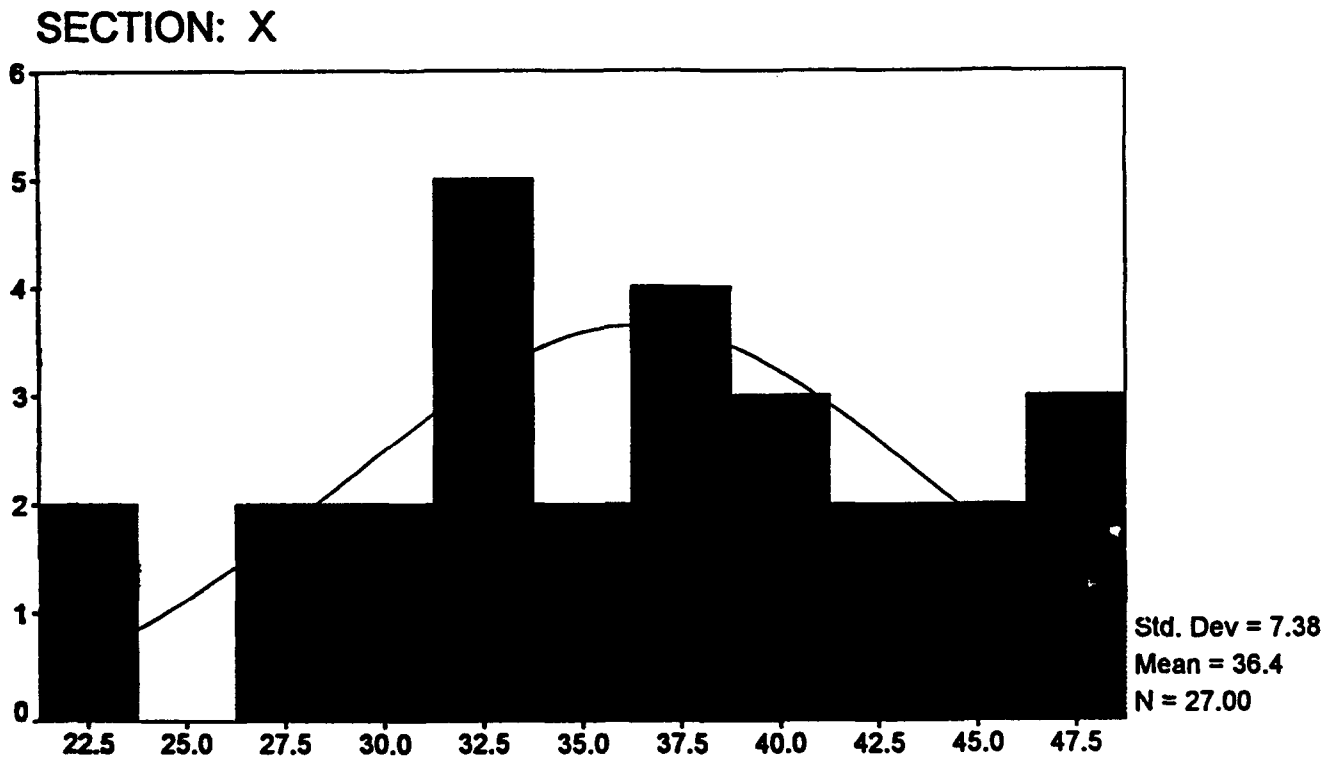


FIGURE 8

SECTION: C

EXTRNSIC EXTRINSIC SATISFACTION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	17	1	3.6	3.6	3.6
	18	1	3.6	3.6	7.1
	19	2	7.1	7.1	14.3
	20	2	7.1	7.1	21.4
	21	2	7.1	7.1	28.6
	22	3	10.7	10.7	39.3
	24	5	17.9	17.9	57.1
	25	3	10.7	10.7	67.9
	26	2	7.1	7.1	75.0
	27	2	7.1	1	82.1
	28	1	3.6	;	85.7
	29	2	7.1	(	92.9
	30	2	7.1	..1	100.0
	Total	28	100.0	100.0	

Mean	23.857	Std err	.693	Median	24.000
Mode	24.000	Std dev	3.669	Variance	13.460
Kurtosis	-.837	S E Kurt	.858	Skewness	-.032
S E Skew	.441	Range	13.000	Minimum	17.000
Maximum	30.000				

Valid cases 28 Missing cases 0

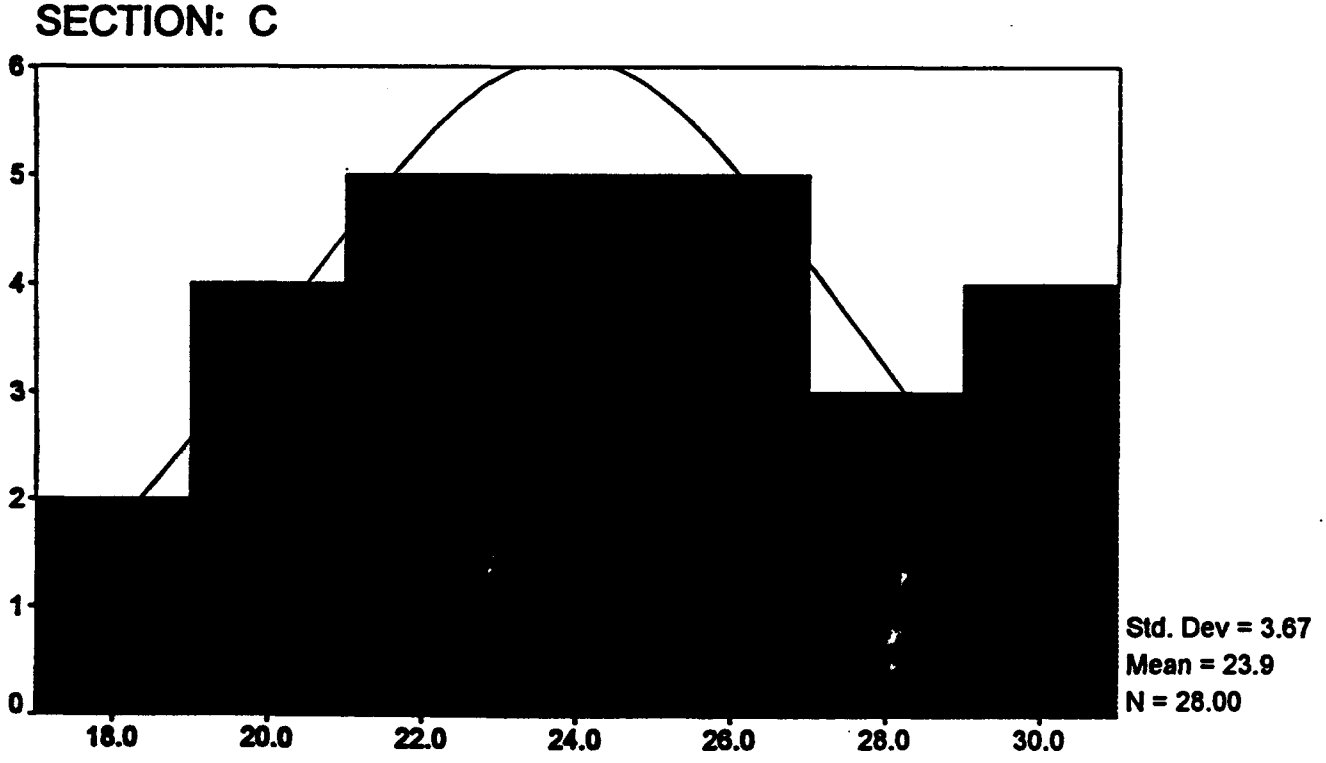


FIGURE 9

SECTION: D

EXTRNSIC EXTRINSIC SATISFACTION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	8	1	3.3	3.3	3.3
	12	1	3.3	3.3	6.7
	13	1	3.3	3.3	10.0
	17	1	3.3	3.3	13.3
	18	3	10.0	10.0	23.3
	19	3	10.0	10.0	33.3
	20	4	13.3	13.3	46.7
	21	2	6.7	6.7	53.3
	22	6	20.0	20.0	73.3
	23	1	3.3	3.3	76.7
	24	2	6.7	6.7	83.3
	26	1	3.3	3.3	86.7
	27	1	3.3	3.3	90.0
	28	3	10.0	10.0	100.0
	Total	30	100.0	100.0	

Mean	20.767	Std err	.836	Median	21.000
Mode	22.000	Std dev	4.576	Variance	20.944
Kurtosis	1.232	S E Kurt	.833	Skewness	-.674
S E Skew	.427	Range	20.000	Maximum	28.000

Valid cases 30 Missing cases 0

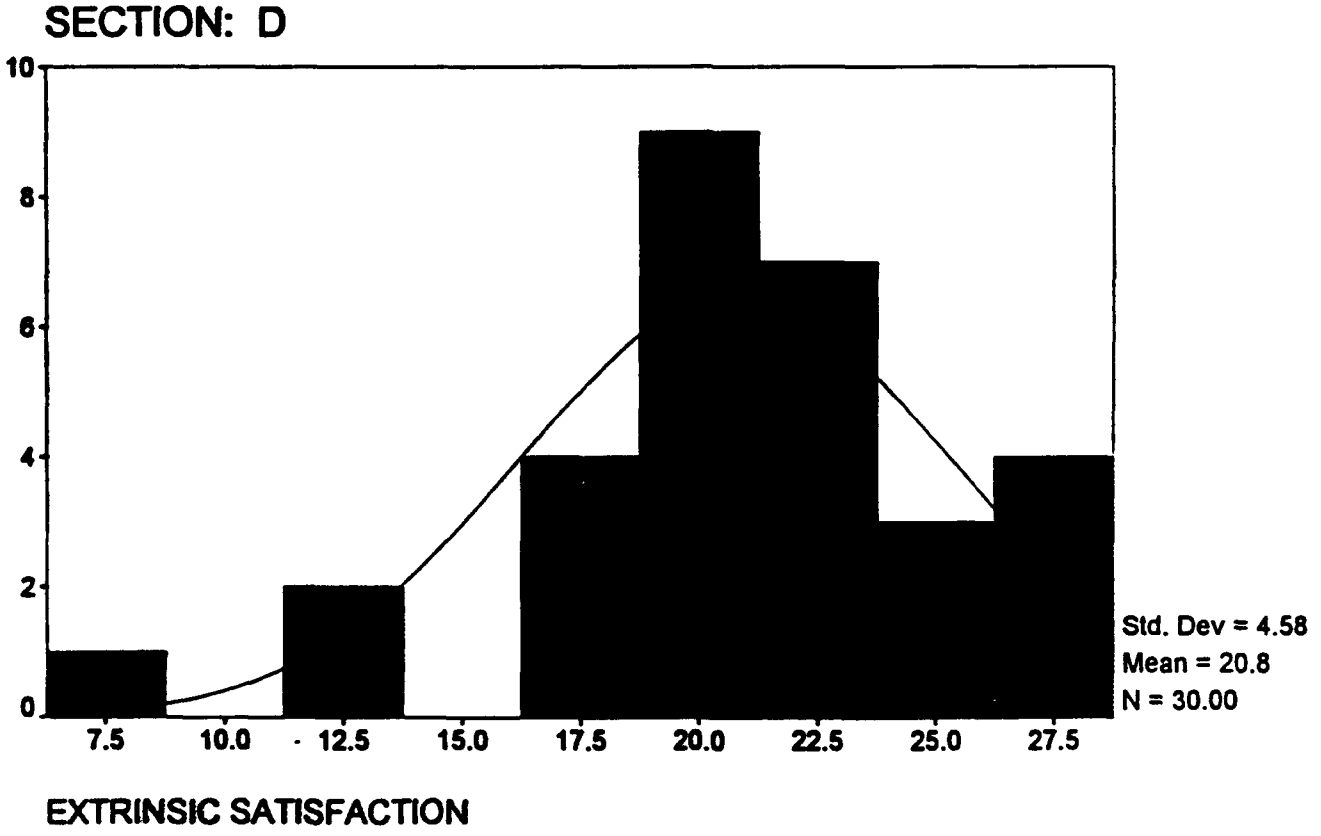


FIGURE 10

SECTION: X

EXTRNSIC EXTRINSIC SATISFACTION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	8	1	3.7	3.7	3.7
	13	1	3.7	3.7	7.4
	14	3	11.1	11.1	18.5
	15	3	11.1	11.1	29.6
	16	2	7.4	7.4	37.0
	17	1	3.7	3.7	40.7
	18	5	18.5	18.5	59.3
	19	2	7.4	7.4	66.7
	20	5	18.5	18.5	85.2
	21	1	3.7	3.7	88.9
	24	2	7.4	7.4	96.3
	25	1	3.7	3.7	100.0
	Total	27	100.0	100.0	

Mean	17.741	Std err	.715	Median	18.000
Mode	18.000	Std dev	3.717	Variance	13.815
Kurtosis	.779	S E Kurt	.872	Skewness	-.236
S E Skew	.448	Range	17.000	Minimum	8.000
Maximum	25.000	Sum	479.000		

* Multiple modes exist. The smallest value is shown.

Valid cases 27 Missing cases 0

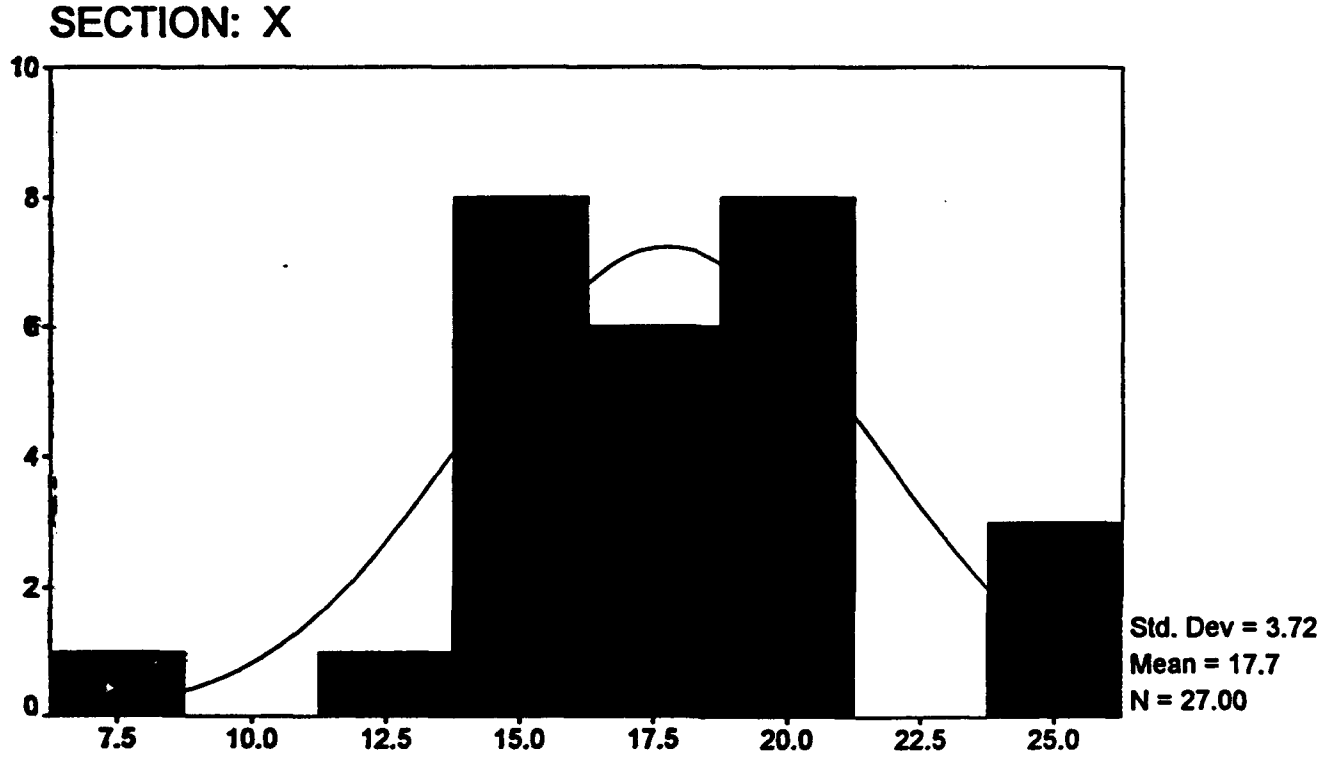


FIGURE 11

- - - - - Kolmogorov - Smirnov Goodness of Fit Test

GENERAL GENERAL SATISFACTION

Test distribution - Normal

Mean: 70.40
Standard Deviation: 14.74

Cases: 85

Most extreme differences

Absolute	Positive	Negative	K-S Z	2-Tailed P
.06078	.04585	-.06078	.5604	.9120

- - - - - Kolmogorov - Smirnov Goodness of Fit Test

EXTRNSIC EXTRINSIC SATISFACTION

Test distribution - Normal

Mean: 20.82
Standard Deviation: 4.69

Cases: 85

Most extreme differences

Absolute	Positive	Negative	K-S Z	2-Tailed P
.08516	.07564	-.08516	.7851	.5685

- - - - - Kolmogorov - Smirnov Goodness of Fit Test

INTRNSIC INTRINSIC SATISFACTION

Test distribution - Normal

Mean: 42.45
Standard Deviation: 9.85

Cases: 85

Most extreme differences

Absolute	Positive	Negative	K-S Z	2-Tailed P
.08457	.03742	-.08457	.7797	.5774

FIGURE 12

Variable GENERAL GENERAL SATISFACTION
By Variable GROUP

Multiple Range Tests: Tukey-HSD test with significance level .050

The difference between two means is significant if
MEAN(J)-MEAN(I) >= 8.4061 * RANGE * SQRT(1/N(I) + 1/N(J))
with the following value(s) for RANGE: 3.38

(*) Indicates significant differences which are shown in the lower triangle

Mean	GROUP	Grp 1	Grp 4	Grp 3
60.5556	Grp 1			
68.2333	Grp 4	*		
82.2143	Grp 3	*	*	

FIGURE 13

----- ONEWAY -----

Variable EXTRNSIC EXTRINSIC SATISFACTION
By Variable GROUP

Multiple Range Tests: Tukey-HSD test with significance level .050

The difference between two means is significant if
MEAN(J)-MEAN(I) >= 2.8477 * RANGE * SQRT(1/N(I) + 1/N(J))
with the following value(s) for RANGE: 3.38

(*) Indicates significant differences which are shown in the lower triangle

		Grp 1	Grp 4	Grp 3
		1	4	3
Mean	GROUP			
17.7407	Grp 1			
20.7667	Grp 4	*		
23.8571	Grp 3	*	*	

FIGURE 14

----- ONEWAY -----

Variable INTRNSIC INTRINSIC SATISFACTION
By Variable GROUP

Multiple Range Tests: Tukey-HSD test with significance level .050

The difference between two means is significant if
MEAN(J)-MEAN(I) >= 5.3922 * RANGE * SQRT(1/N(I) + 1/N(J))
with the following value(s) for RANGE: 3.38

(*) Indicates significant differences which are shown in the lower triangle

Mean	GROUP	G r p 1	G r p 4	G r p 3
36.4074	Grp 1			
39.6667	Grp 4			
51.2500	Grp 3	*	*	

FIGURE 15

INTRINSIC	SATISFACTION	INDEX
	SECTION C	SECTION D
HIGH SATISFACTION	25 (89.3%)	11 (36.7%)
AVERAGE SATISFACTION	3 (10.7%)	17 (56.7%)
LOW SATISFACTION	0	2 (6.6%)
	n = 28	n = 30

EXTRINSIC	SATISFACTION	INDEX
	SECTION C	SECTION D
HIGH SATISFACTION	17 (60.7%)	8 (26.7%)
AVERAGE SATISFACTION	11 (39.3%)	21 (70%)
LOW SATISFACTION	0	1 (3.3%)
	N = 28	N = 30

GENERAL	SATISFACTION	INDEX
	SECTION C	SECTION D
HIGH SATISFACTION	21 (75%)	9 (30%)
AVERAGE SATISFACTION	7 (25%)	21 (70%)
LOW SATISFACTION	0	0
	n = 28	n = 30